IN THE CLAIMS

Please amend the claims as follows:

1. (Cancelled)

2. (Currently Amended) ~~The semiconductor package of claim 1,~~ A semiconductor package comprising:

a semiconductor die having a front side and an opposed backside;

a backside metallization layer formed on the backside of the die;

an integrated heat spreader;

a thermal interface including a fluxlessly-capable solder portion deposited on a top surface of the integrated heat spreader and bonded to said metallization layer under load and heat; and

said backside metallization layer including three layers including an adhesion/barrier layer, a wetting layer, and a protection layer.

3. (Original) The semiconductor package of claim 2, said adhesion/barrier layer formed of a material selected from the group consisting of Ti, TiN, Ta, and TaN.

4. (Original) The semiconductor package of claim 2, said wetting layer formed of a material selected from the group consisting of NiV and Ni.

5. (Original) The semiconductor package of claim 2, said protection layer formed of a material selected from the group consisting of Au, Pt and Pd.

6. (Cancelled)

7. (Cancelled)

8. (Cancelled)

9. (Currently Amended) The semiconductor package of claim [[1]] 2, said thermal interface layer including a barrier layer disposed between the solder portion and the integrated heat spreader.

10. (Original) The semiconductor package of claim 9 wherein said barrier layer is formed of Ni.

11. (Currently Amended) The semiconductor package of claim [[1]] 2, wherein said backside metallization layer includes an adhesion/barrier layer, a wetting layer, and a protection layer, and said thermal interface layer includes a solder portion including gold (Au) and tin (Sn) together with a barrier layer formed of nickel (Ni) disposed between the solder portion and the integrated heat spreader.

12. (Cancelled)
13. (Cancelled)
14. (Cancelled)
15. (Cancelled)
16. (Cancelled)
17. (Cancelled)
18. (Cancelled)
19. (Cancelled)
20. (Cancelled)
21. (Cancelled)
22. (Cancelled)
23. (Cancelled)
24. (Cancelled)
25. (Cancelled)
26. (Cancelled)
27. (Cancelled)

28. (Previously Presented) A semiconductor package comprising:

a semiconductor die having a front side and an opposed backside;

a backside metallization layer formed on the backside of the die, said backside metallization layer including three layers including an adhesion/barrier layer, a wetting layer, and a protection layer;

an integrated heat spreader; and

a thermal interface including a fluxlessly-capable solder portion deposited on a top surface of the integrated heat spreader and bonded to said metallization layer under load and heat.

29. (Previously Presented) The semiconductor package of claim 28, said adhesion/barrier layer formed of a material selected from the group consisting of Ti, TiN, Ta, and TaN.

30. (Previously Presented) The semiconductor package of claim 28, said wetting layer formed of a material selected from the group consisting of NiV and Ni.

31. (Previously Presented) The semiconductor package of claim 28, said protection layer formed of a material selected from the group consisting of Au, Pt and Pd.

32. (Previously Presented) The semiconductor package of claim 28, said solder portion including AuSn solder.

33. (Previously Presented) The semiconductor package of claim 32 wherein said solder portion includes either separate Au and Sn layers or a single eutectic AuSn layer.

34. (Previously Presented) The semiconductor device of claim 33 wherein a thickness of Au layer and Sn layer is formed so that an overall Au-to-Sn ratio by weight is 80 to 20.

35. (Previously Presented) The semiconductor package of claim 28, said thermal interface layer including a barrier layer disposed between the solder portion and the integrated heat spreader.

36. (Previously Presented) The semiconductor package of claim 35 wherein said barrier layer is formed of Ni.

37. (Previously Presented) A semiconductor package comprising:
a semiconductor die having a front side and an opposed backside;
a backside metallization layer formed on the backside of the die;
an integrated heat spreader; and

a thermal interface including a fluxlessly-capable solder portion deposited on a top surface of the integrated heat spreader and bonded to said metallization layer under load and heat, wherein said backside metallization layer includes an adhesion/barrier layer, a wetting layer, and a protection layer, and said thermal interface layer includes a solder portion including gold (Au) and tin (Sn) together with a barrier layer formed of nickel (Ni) disposed between the solder portion and the integrated heat spreader.